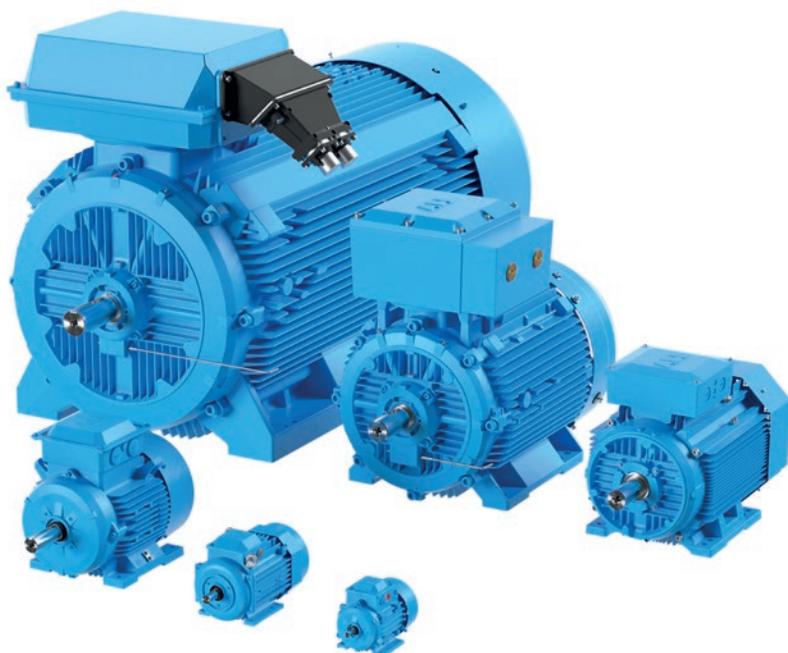


PRODUCT NOTE

MEPS scheme for low-voltage motors in Australia and New Zealand



Mandatory MEPS requirements

In October 2001, the Australian Greenhouse Office (AGO) introduced the first stage of the Australian Minimum Energy Performance Standards (MEPS) program for three-phase induction motors, and it was made mandatory for both motor suppliers and importers. The program was revised in 2006 (referred to as MEPS2), and a further revision, the Greenhouse and Energy Minimum Standards Act, was implemented in October 2012.

The MEPS program for electric motors is part of the E3 Program, which is administered by the Department of the Environment and Energy with input from state and territorial governments and the New Zealand Government (through the Energy Efficiency Conservation Authority). The E3 Program is followed by the Energy Efficiency Advisory Team (EEAT), which has representatives from Australia, New Zealand and as well as from the territories (New South Wales, Queensland etc.). The EEAT recommends actions to the whole region for decisions.

The MEPS scheme applies to electric motors manufactured in or imported into Australia or New Zealand, either directly or in conjunction with other equipment - pumps, fans, conveyors, gearboxes, etc. It applies to two-, four-, six- and eight-pole, three-phase cage induction motors rated from 0.73 kW up to but not including 185 kW, for voltages up to 1,100 V. Explosion-proof motors are also included.

The following types of motor are excluded: submersible motors, integral motor-gear systems (motor not separable from gearbox or compressor), variable or multispeed motors,

and those rated only for short duty cycles (IEC 60034-1 duty rating S2). The MEPS scheme does not apply to rewind motors, except where the supplier claims that the rewind motor meets the requirements for one of the efficiency levels defined by Test Method A or Test Method B according to AS/NZS 1359.5:2004.

Importers who want to supply motors that are subject to the MEPS scheme to the Australian and New Zealand markets must ensure that the motors are registered with the state regulator through the national online database system - www.energyrating.gov.au

In order to register the motors for importation, the importer must:

- Ensure that the motors comply with the AS/NZS 1359.5:2004 standard
- Be able to prove compliance by supplying a load test report based on one of the approved test methods outlined in the standard

Importation of unregistered three-phase electric motors is subject to strict penalties.

Qualification for MEPS registration

To qualify for MEPS registration, motors must meet the efficiency levels specified in the AS/NZS 1359.5:2004 standard. See tables overleaf.

The efficiency level must be equal to or better than the efficiency value specified for the motor's rated output power.

The tables show two different sets of efficiency requirements. Table 1 shows the minimum efficiency value that a motor must meet in order to qualify for registration and importation. Table 2 shows the minimum efficiency value that a motor must meet in order to qualify for a High Efficiency (HE) label. Manufacturers are prohibited from “branding” or marketing motors as high efficiency unless they qualify. The MEPS standard applies to voltage only, not frequency, and so the values in the tables assume 50 Hz operation. High-efficiency motors in Australia and New Zealand correspond approximately to the IE3 level specified in IEC 60034-30: 2008. This is also similar to the NEMA premium efficiency class under the US EPCAct scheme.

Both the motors and the company must be registered on the Interactive Product List. A full list of motors that are regulated and registered for MEPS in Australia and New Zealand can be found on the government website: www.energyrating.gov.au. The interactive product list shows products and manufacturers/importers that comply with the efficiency requirements.

Details on how to register products are available at www.energyrating.gov.au/forms.html.

Efficiency testing methods

AS/NZS standard 1359.5:2004 describes two internationally recognized test methods, complete with tables showing the motor efficiency levels. Both methods are valid for MEPS and are referred to as Test Method A and Test Method B.

Test Method A is identical to IEC 61972, which has been replaced by IEC 60034-2-1, and is technically equivalent to IEEE112-B. It involves precise and direct measurement of the additional load losses (or stray load losses).

Method B is equivalent to the old IEC 60034-2 standard, and assumes a fixed figure of 0.5 percent for additional load losses. Therefore, the required efficiency levels for Method B are higher than for the Method A.

The MEPS levels and “High Efficiency” levels shown in the tables overleaf are determined by Test Method A, which is the more accurate approach.

Compliance and verification

Verification is an essential part of the MEPS regulations and will be carried out on registered products. Compliance is policed by the AGO and state electricity regulators. Motors are selected and tested at accredited laboratories to ensure that manufacturers’ and importers’ claims are correct and in compliance with the regulations. A number of units available on the market will be selected and tested annually.

ABB motors and the MEPS scheme

ABB has motors registered according to both the MEPS and High Efficiency requirements. The complete list of motors can be viewed at <http://www.energyrating.gov.au/appsearch/motors.asp>.

Table 1: Minimum efficiency level - Test Method A

Rated Power kW	Minimum Efficiency %			
	2 poles	4 poles	6 poles	8 poles
0.73	78.8	80.5	76.0	71.8
0.75	78.8	80.5	76.0	71.8
1.1	80.6	82.2	78.3	74.7
1.5	82.6	83.5	79.9	76.8
2.2	84.0	84.9	81.9	79.4
3	85.3	86.0	83.5	81.3
4	86.3	87.0	84.7	82.8
5.5	87.2	87.9	86.1	84.5
7.5	88.3	88.9	87.3	86.0
11	89.5	89.9	88.7	87.7
15	90.3	90.8	89.6	88.9
18.5	90.8	91.2	90.3	89.7
22	91.2	91.6	90.8	90.2
30	92.0	92.3	91.6	91.2
37	92.5	92.8	92.2	91.8
45	92.9	93.1	92.7	92.4
55	93.2	93.5	93.1	92.9
75	93.9	94.0	93.7	93.7
90	94.2	94.4	94.2	94.1
110	94.5	94.7	94.5	94.5
132	94.8	94.9	94.8	94.8
150	95.0	95.2	95.1	95.2
< 185	95.0	95.2	95.1	95.2

Table 2: High Efficiency (HE) level - Test Method A

Rated Power kW	Minimum Efficiency %			
	2 poles	4 poles	6 poles	8 poles
0.73	81.4	82.9	78.8	75.0
0.75	81.4	82.9	78.8	75.0
1.1	83.0	84.5	80.9	77.6
1.5	84.8	85.6	82.4	79.6
2.2	86.2	86.9	84.2	81.9
3	87.2	87.8	85.6	83.6
4	88.1	88.7	86.7	85.0
5.5	88.9	89.5	87.9	86.5
7.5	89.9	90.4	89.0	87.8
11	90.9	91.3	90.2	89.3
15	91.6	92.1	91.0	90.4
18.5	92.1	92.4	91.6	91.1
22	92.4	92.8	92.1	91.5
30	93.1	93.4	92.8	92.4
37	93.6	93.8	93.3	92.9
45	93.9	94.1	93.7	93.5
55	94.2	94.4	94.1	93.9
75	94.8	94.9	94.6	94.6
90	95.0	95.2	95.0	94.9
110	95.3	95.5	95.3	95.3
132	95.5	95.6	95.5	95.5
150	95.7	95.9	95.8	95.9
< 185	95.7	95.9	95.8	95.9

For more information, please contact your local ABB representative or visit:

abb.com/motors-generators

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB Ltd does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained herein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in part – is forbidden without prior written consent of ABB Ltd.

Copyright © 2018 ABB, All rights reserved